AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A probe for measuring the electrical resistance of a resistive element, for estimating loss of a metal exposed to an environment, comprising:

(a) a sealed hollow body having a first and second end;

(b) a resistive element contained at the first end of the body wherein a surface of the resistive element is exposed to the environment and the resistive element has a similar or identical composition to the exposed metal;

(c) an internal or external power source electrically connected to the resistive element;

(d) a meter for measuring the electrical resistance of the resistive element;

(e) a temperature sensing device for measuring the temperature of the resistive element disposed proximally to the resistive element;

(f) a memory for storing resistance and temperature data; ~~and~~

(g) control means for applying an electric current and potential across the resistive element, receiving the output data of the resistance meter, receiving the output data of the temperature sensing device, and storing said data into the memory wherein the resistance data is associated with the temperature data;

(h) an element carrier at its first end for holding the resistive element in the particular environment;

(i) a probe body releasably attached to the element carrier; and

(i) a carrier plug for insertion into the structure that is being exposed to the particular environment at its second end, the carrier plug being fixed to the probe body.

wherein said probe does not use a comparative reference element.

2. (Original) The probe of claim 1 wherein the resistive element is comprised of an electrically conductive metallic element having known dimensions which is compositionally similar or identical to the metal.

3. (Original) The probe of claim 1 wherein the temperature measuring device is disposed proximally to the resistive element.

4. (Original) The probe of claim 1 further comprising a pressure sensor exposed to the environment for measuring the pressure of the particular environment.

5. (Original) The probe of claim 1 wherein the control means comprises a compact electrical circuit comprising a resistance measurement circuit, a temperature measurement circuit, a pressure measurement circuit, which is operatively connected to, or comprises, the memory.

6. (Original) The probe of claim 5 wherein the compact electrical circuit comprises a microchip.

7. (Cancelled)

8. (Currently Amended) The probe of claim 1 wherein the probe body is permanently affixed to the element carrier.